

### **Abstract of the Invention**

5      Provided is a microfluidic device comprising a microfluidic substrate comprising at least one pathway for sample flow; and at least one thermal transfer member which is capable of cycling between at least two temperatures. The thermal transfer member is adapted to heat at least a portion of the sample pathway while a sample is flowing along said at least a portion of said sample pathway. Provided also are methods of carrying out biochemical protocols using such a device.

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